

**Environmental Review
Proposed Categorical Exclusion**

For

**The Proposed West Flow Area Navigation Standard Instrument Departure Procedures
at Phoenix Sky Harbor International Airport as described in the Memorandum Regarding
Implementation of Court Order per *City of Phoenix, Arizona v. Huerta*, 869 F.3d 963 (D.C.
Circuit 2017)**

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1.0 INTRODUCTION

The Federal Aviation Administration (FAA) is proposing to amend the west flow Area Navigation (RNAV) Standard Instrument Departure (SID) procedures from runways 25 Left, 25 Right and 26 at Phoenix Sky Harbor International Airport (“Phoenix Sky Harbor”), Phoenix, Arizona. The proposed amendments are consistent with the resolution of the parties as stipulated in the Memorandum Regarding Implementation of the Court Order (“Memorandum”), jointly negotiated following the court’s August 29, 2017, Order in *City of Phoenix, Arizona v. Huerta*, 869 F.3d 963 (D.C. Circuit 2017)¹.

This final Environmental Review serves to document the FAA’s compliance with Section 5.b and Section 7 of the Memorandum, and inform the FAA’s compliance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code (U.S.C.) Section 4321 et seq.); implementing regulations issued by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations (CFR), parts 1500-1508); FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* (FAA Order 1050.1F), and FAA Order 7400.2L, *Procedures for Handling Airspace Matters*. FAA Order 7400.2L provides guidance and establishes policy and procedures to assist air traffic personnel in applying the requirements of FAA Order 1050.1F. In addition, this final Environmental Review and the associated public involvement has been guided by the principles in the FAA’s February 2016 Community Involvement Manual.

Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). A CATEX refers to a category of actions that the FAA has determined, based on previous experience, does not individually or cumulatively have a significant effect on the human environment except in extraordinary circumstances. The presence of extraordinary circumstances would preclude the use of a CATEX and would merit additional review in an EA or EIS. A CATEX is not an exemption or a waiver from NEPA review; it is a level of NEPA review and compliance. FAA Order 1050.1F, Section 5-6.5, *Categorical Exclusions for Procedural Actions* includes the list of CATEXs involving establishment, modification, or application of airspace and air traffic procedures.

The FAA has determined that the Proposed Action would fall under one of the listed categorically excluded actions in FAA Order 1050.1F, specifically, Section 5-6.5.i: “. . . . modifications to currently approved procedures conducted below 3,000 feet above ground level (AGL) that do not significantly increase noise over noise sensitive areas.”

¹ On February 7, 2018, the Court issued an order amending its opinion. The amendment did not affect the parties’ Memorandum.

Specifically, the Proposed Action would only alter the beginning of the departure procedures, requiring planes to return to the RNAV procedures after the first legs of their departure. Based on noise screening analysis (described in more detail below), the FAA has determined that the proposed action amending currently approved procedures conducted below 3,000 feet AGL would not significantly increase noise over noise sensitive areas, and thus would be covered by this CATEX. However, before finalizing a decision to categorically exclude the proposed action, the FAA must consider the potential for extraordinary circumstances, pursuant to FAA Order 1050.1F, Paragraph 5-2.

Extraordinary circumstances are factors or circumstances in which a normally categorically excluded action may have a significant environmental impact that then requires further analysis in an EA or an EIS. For FAA proposed actions, extraordinary circumstances exist when the proposed action involves any of the circumstances described in Order 1050.1F, Paragraph 5-2(b) and has the potential for a significant impact. For the Proposed Action, the FAA is considering the following factors, which, if they result in a significant impact, would preclude use of a CATEX to satisfy NEPA requirements:

- An adverse effect on cultural resources protected under the National Historic Preservation Act of 1966, as amended, 54 U.S.C. §300101 et seq.
- An impact on properties protected under Section 4(f) of the Department of Transportation Act.
- An impact on natural, ecological, or scenic resources of Federal, state, tribal, or local significance.
- An impact on noise levels of noise sensitive areas.²
- An impact on air quality.
- Impacts on the quality of the human environment that are likely to be highly controversial on environmental grounds.³
- Likelihood to directly, indirectly, or cumulatively create a significant impact on the human environment.

This document describes how the CATEX applies to the Proposed Action, and presents analysis of extraordinary circumstances that could require more detailed NEPA review.⁴

² An area is noise sensitive if aircraft noise may interfere with the normal activities associated with the use of the land. Normally, noise sensitive areas include residential, educational, health, and religious structures and sites, and parks, recreational areas, areas with wilderness characteristics, wildlife refuges, and cultural and historical sites.

³ The term “highly controversial on environmental grounds” means there is a substantial dispute involving reasonable disagreement over the degree, extent, or nature of a proposed action’s environmental impacts or over the action’s risks of causing environmental harm. FAA Order 1050.1F. Section 5-2.b.(10).

⁴ There is not a prescribed format for an environmental review of a CATEX. However, the documentation should cite the CATEX(s) used, describe how the proposed action fits within the category of actions described in the CATEX, and explain that there are no extraordinary circumstances that would preclude the proposed action from being categorically excluded.” FAA Order 1050.1F. Section 5-3.d.

2.0 BACKGROUND

On September 18, 2014, the FAA published a number of Area Navigation (RNAV) procedures for use at Phoenix Sky Harbor. These procedures took advantage of modern technology to improve the safety and efficiency of aircraft operations in the airspace around Phoenix Sky Harbor. On June 1, 2015, the City of Phoenix and a number of neighborhood groups (together, the “Petitioners”) challenged the FAA’s approval of certain RNAV departure procedures in the U.S. Court of Appeals for the D.C. Circuit (“Court”). On August 29, 2017, the Court ruled in favor of the Petitioners.

3.0 PURPOSE AND NEED

In response to the Court’s decision, the FAA and the Petitioners worked together on the best way to implement the Court’s order (See Appendix A: Memorandum). The FAA, in consultation with the City of Phoenix, developed the Proposed Action to comply with the Court’s Order and to meet the requirements set forth in the Memorandum. The parties agreed to a two-step process for Phoenix Sky Harbor that ensures aircraft operations remain safe and efficient. The first step (Step One) of the process would provide interim noise relief to the Petitioners by approximating the western departure routes that were in place before the September 2014 RNAV procedures.⁵ Step One consists of two parts (Step 1A and Step 1B), where Step 1A is subject of the current action. Step 1B would be an independent, proposed action to be analyzed at a future date consistent with Section 5 of the Memorandum. Step 1B would involve replacing the two interim departure routes in Step 1A and implementing nine new west flow RNAV departure procedures. These new RNAV SIDs under Step 1B would not require radar vectoring, in contrast to the two RNAV SIDs in Step 1 A.

4.0 ALTERNATIVES

The FAA considered two alternatives: the Proposed Action and the No Action alternative. The alternatives analysis was conducted to comply with Section 5 of the Memorandum and is consistent with CEQ regulations and FAA guidance provided in FAA Order 1050.1F. This section discusses the following topics:

- The Proposed Action Development Process
- The No Action Alternative
- The Proposed Action

⁵ Step Two of the Memorandum, which is not part of the current proposal, will involve the development of long-term replacement procedures for western departures at Phoenix Sky Harbor and will consider other proposed changes to the Phoenix airspace.

Proposed Action Development Process

The main objective of Step One is to provide Petitioners short-term relief from aircraft noise as expeditiously as possible. To do so, FAA agreed to develop a Letter of Agreement between the Phoenix Terminal Radar Approach Control and the Phoenix Airport Traffic Control Tower that replaces the initial departure instructions for the Western RNAV Routes with alternate departure instructions for turbojet aircraft that approximate to the extent practicable, actual departure paths flown prior to September 18, 2014, while maintaining safe and efficient aircraft operations. Consistent with Section 6 of the Memorandum, Step Two of the process will be considered after Step One is complete.

FAA used this framework and objective in the procedure development process. Because the Proposed Action is a package of two individual, interrelated procedures combined into one alternative, the FAA considered and evaluated variations of these procedures in combination with one another to determine whether the alternative would fulfill the obligations under the Memorandum. For example, FAA originally considered manual radar vectors⁶ for the western departures, where each departing aircraft would be assigned an initial directional heading and altitude, then subsequent course corrections en route to the aircraft's destination.

The FAA instead developed two separate and independent proposals to implement RNAV SID procedures in lieu of manual radar vectors in order to ensure aircraft operations remain safe and efficient in the Phoenix airspace without increasing pilot and controller workload. The proposed Step 1A RNAV SID procedures are the first step in order to return the west flow procedures to the pre-September 2014 flight paths. The second set of changes, the Step 1B RNAV SID procedures, are intended to further address workload concerns and complete the return to the pre-September 2014 flight paths. The Step 1A RNAV SID procedures are the Proposed Action for this environmental review, and the details of the Proposed Action are discussed below. The Proposed Action procedure designs address the Petitioners' concerns by approximating the western departure routes that were in place before the September 2014 RNAV procedures. In developing the Proposed Action, the FAA was responsible for following regulatory and technical guidance as well as meeting criteria and standards in three general categories:

1. RNAV Design Criteria and Air Traffic Control Regulatory Requirements - Flight procedure design is subject to requirements found in several FAA Orders and guidance documents, including FAA Order 8260.3C,⁷ *United States Standard for Terminal Instrument Procedures*, FAA Order 8260.58B, *United States Standard for Performance Based Navigation Instrument Procedure Design*, FAA Order 8260.43B, *Flight Procedures Management Program*, FAA Order JO 7110.65X, *Air Traffic Control*, FAA Order JO 7100.41A, *Performance Based*

⁶ Manual Vectors: Directional headings issued to aircraft to provide navigational guidance and to maintain separation between aircraft and/or obstacles.

⁷ These procedures were developed before FAA Order 8260.D was issued on February 16, 2018.

Navigation Implementation Process and *The Guidelines and Updates for Implementing Terminal RNAV Procedures*. In addition, FAA Order JO 7110.65X *Air Traffic Control* includes requirements governing air traffic control procedures, air traffic management, and appropriate technical terminology.

2. Operational Criteria – To the maximum extent possible, Performance Based Navigation (PBN), procedures are developed operationally to ensure aircraft departure and arrival lateral and vertical paths are procedurally separated. Air traffic controllers are responsible for aircraft separation; however, they use PBN procedures to assist with their operational responsibilities at Phoenix Sky Harbor and surrounding airports. Operational criteria were consistent with the Purpose and Need for the project. FAA believes that vacating the challenged departure procedures without valid replacement procedures may substantially delay operations at Phoenix Sky Harbor and could increase safety risks by complicating airport operations.

3. Safety Risk Management Criteria - FAA evaluated air traffic procedures using the Air Traffic Organization's (ATO) Safety Management System (SMS). The SMS is the system for assessing and managing the safety of air traffic control and navigation services in the National Airspace System. If a procedure introduced a new hazard or increased the severity and/or likelihood of an existing hazard, the design was adjusted or mitigated to reduce the hazard to acceptable levels. In compliance with SMS requirements, the procedures were evaluated by a Safety Risk Management Panel⁸ following a five step process: 1) describe the system; 2) identify the hazards in the system; 3) analyze the risks; 4) assess the risk; and, 5) treat the risk (if any).

Finally, FAA undertook validation exercises that further refined the procedures to ensure they were viable. Specifically, FAA took into account the limitations imposed by mountainous terrain, Class Bravo⁹ Controlled Airspace, and Special Use Airspace¹⁰. Controlled Airspace is a generic term that covers the different classifications of airspace and defined dimensions within which air traffic control service is provided to flights in accordance with the airspace classification. Class Bravo Airspace is airspace generally from the surface to 10,000 feet mean sea level (MSL) surrounding the nation's busiest airports in terms of instrument flight rules operations or passenger enplanements. An air traffic control clearance is required for all aircraft to operate in Class Bravo Airspace, and all aircraft so cleared receive separation services within the airspace.

These three factors resulted in restrictions to the design options for this initial phase of the Phoenix Memorandum project, and the alternative considered.

⁸ Safety Risk Management Panel Members or subject matter experts are selected based on their technical expertise or operational responsibilities for the facility or system under consideration and their authority to make decisions for their respective organizations. (FAA Air Traffic Organization Safety Management System Manual, July 2017.)

⁹ Classes of Airspace: https://www.faa.gov/gslac/ALC/course_content.aspx?CID=42&SID=505&preview=true

¹⁰ Special use airspace is used to designate airspace in which certain activities must be confined, or where limitations may be imposed on aircraft operations that are not part of those activities. See https://www.faa.gov/uas/where_to_fly/airspace_restrictions/.

Alternatives Analysis

For purposes of this final Environmental Review, the FAA compared the No Action alternative, based on the 2017 flight tracks, with the Proposed Action, consistent with CEQ regulations and FAA Order 1050.1F.

The No Action Alternative comprises the current west configuration RNAV SIDs, by which aircraft follow the published procedures on a flight path with initial turns to the northwest and to the southwest at approximately 3 nautical miles from the west end of the runways. The current west configuration RNAV SID procedures at Phoenix Sky Harbor are as follows:

1. The MAYSA RNAV SID intersects the ZEPER fix, at which point it heads northwest.
2. The SNOBL RNAV SID heads north, until it intersects the CARTL fix, at which point it splits into three transitions. One transition heads north, and two transitions head northeast.
3. The YOTES RNAV SID heads north until it intersects the YOTES fix, at which point it splits into three transitions. One transition heads north, and two transitions head northeast.
4. The LALUZ RNAV SID heads to the northeast until it intersects the FORPE fix then intersects the ST JOHNS VORTAC (SJN), at which point it splits into two transitions. It serves aircraft en route to the east.
5. The FTHLS RNAV SID heads east to the BROAK fix then intersects the JSSUA fix, at which point it splits into two transitions. It serves aircraft en route to the northeast and southeast.
6. The KATMN RNAV SID heads southeast towards the BOXXR fix and services aircraft en route to the southeast.
7. The BNYRD RNAV SID heads south towards the STANFIELD VORTAC (TFD) and serves aircraft en route to the south and southeast.
8. The JUDTH RNAV SID heads southwest towards the MOHAK fix and serves aircraft en route to the southwest.
9. The IZZZO RNAV SID serves aircraft heading west.

Proposed Action

As described previously, the changes under Step One of the Memorandum were divided into two actions with independent utility: Step 1A and Step 1B. The Proposed Action addressed in this document, Step 1A, is the first step in implementing the Memorandum. The FAA is proposing to implement Step 1A on March 29, 2018, which would amend certain westerly routes for aircraft departing from Phoenix Sky Harbor. The changes under Step 1B would complete implementation of Step One in the Memorandum between the FAA, the City of Phoenix, and the historic neighborhood associations and replace the Step 1A RNAV SIDs as well as the current RNAV SIDs. The nine new RNAV SID procedures being considered under Step 1B would provide a seamless predictable flight path from Phoenix Sky Harbor to the en route air traffic structure.

The Step 1A procedure designs allows aircraft to climb to an altitude of 500 feet AGL, or 1,635 feet MSL, to an “engagement point” when the aircraft navigation flight management computer begins providing the pilot with route, altitude and speed guidance.¹¹ This “engagement point” does not occur at a specific location, but is determined by when the aircraft leaves the runway surface and the aircraft’s rate of climb through 1,635 feet MSL. Step 1A would amend the western flow of aircraft flying the RNAV SID procedures from Runways 25 Left, 25 Right, and 26, at Phoenix Sky Harbor. The RNAV SIDs being amended are the MAYSA, LALUZ, SNOBL, YOTES, and IZZZO

Aircraft on the current northwest RNAV SIDs (MAYSA, LALUZ, SNOBL, and YOTES), would climb following the extended runway centerline then join the proposed RNAV SID to connect to the en route airway structure for flights to the north, northwest and the northeast. Consistent with the Memorandum the FAA designed the proposed procedures to initiate the first procedural turn at 43rd avenue in order to approximate the flight paths of the pre-September 2014 procedures. The Proposed Action flight paths were pushed further west of 43rd Avenue to accommodate the broad range of aircraft types and their Distance of Turn Anticipation (DTA)¹² With such an aggressive turn to the north of approximately 90 degrees based on procedure design criteria, the procedure design ensures that no aircraft will begin its turn prior to 43rd Avenue. Aircraft on the current west RNAV SID (IZZZO) would follow a southwest course to the en route airway structure for flights to the west.

As originally proposed in the draft Environmental Review document dated January 2018, aircraft on the southwest RNAV SIDs (BNYRD, FTHLS, JUDTH, and KATMN), would follow a southwest course to the WETAL fix in order to connect to the en route airway structure for

¹¹The “engagement point” refers to lateral navigation where aircraft navigate over a ground track with guidance from an electronic device that gives the pilot (or autopilot) error indications in the lateral direction only and not in the vertical direction.

¹² Distance of Turn Anticipation (DTA): the distance from (prior to) a fly-by fix at which an aircraft is expected to start a turn to intercept the course/track of the next segment. An aircraft’s Flight Management System computer flying an RNAV route will anticipate how soon the aircraft must begin its turn prior to the next waypoint in order to roll out on the next leg without bypassing the waypoint. The tighter the turn, the greater the distance the FMS will begin the turn prior to the next waypoint. Wind, aircraft weight, and air speed are some of the factors the FMS uses to calculate the DTA turn.

flights to the south, southwest and southeast. Based on initial consultation under Section 106 of the National Historic Preservation Act, the FAA revised the Proposed Action in order to make the WETAL RNAV SID unavailable to aircraft pending further evaluation and consultation (refer to Section 5.4).¹³ As a result, aircraft departing to the west then turning south would follow the procedures that are currently in place. FAA is proposing to proceed with charting the ZIDOG, KEENS and WETAL RNAV SIDs, with an issuance of a *Notice to Airmen* (NOTAM) that the WETAL is unavailable for use. Because the WETAL RNAV SID will be unavailable for use, it is not part of the Proposed Action. For purposes of this environmental review, it is assumed that the WETAL RNAV SID would not be used for operations.

The proposed Step 1A RNAV SIDs would be re-named in accordance with FAA criteria. The Step 1A RNAV SIDs are¹⁴:

1. The ZIDOG RNAV SID serves aircraft departing west and turning north. Aircraft departing Runway 25L would climb through an altitude of 500 feet AGL (1,635 feet MSL) direct to the ZOLUP fix, then direct to the YOVKU fix. Aircraft departing Runway 25R would climb through an altitude of 500 feet AGL (1,635 feet MSL) direct to the JINOL fix, then to the OSGUE fix. Aircraft departing Runway 26 would climb through an altitude of 500 feet AGL (1,635 feet MSL) direct to the WIVLA fix, then to the HIRVU fix. All aircraft would then perform a right turn north direct to the ZIDOG fix. The RNAV SID ends at the ZIDOG fix. Air traffic control would then vector aircraft to join a departure route that closely follows the current published RNAV procedures (MAYSA, LALUZ, SNOBL and YOTES RNAV SIDs).
2. The KEENS RNAV SID serves aircraft departing west and continuing on a westward flight path. Aircraft would climb through an altitude of 500 feet AGL (1,635 feet MSL) with a left turn to the WULKO fix. Aircraft would then proceed west to the KEENS fix. The routing following the KEENS fix closely follows the current published westbound IZZO RNAV SID.

5.0 PRELIMINARY ENVIRONMENTAL IMPACT ANALYSIS

As explained above, the use of a CATEX to satisfy NEPA is precluded if the proposed action involves any of the circumstances described in Order 1050.1F, Paragraph 5-2(b) and has the potential for significant impact. The determination of whether a proposed action may have a significant environmental impact under NEPA is made by considering the relevant environmental impact categories and comparing impacts to the FAA's thresholds of significance,

¹³ FAA anticipates that Step 1B would finalize RNAV SIDS for aircraft departing to the west then turning south.

¹⁴ Refer to Appendix D for Figures D-1 through D5 of the ZIDOG and KEENS RNAV SIDs proposed routes.

where applicable, as well as any other relevant federal laws and statutes, Executive Orders, and regulations as outlined in with FAA Order 1050.1F.

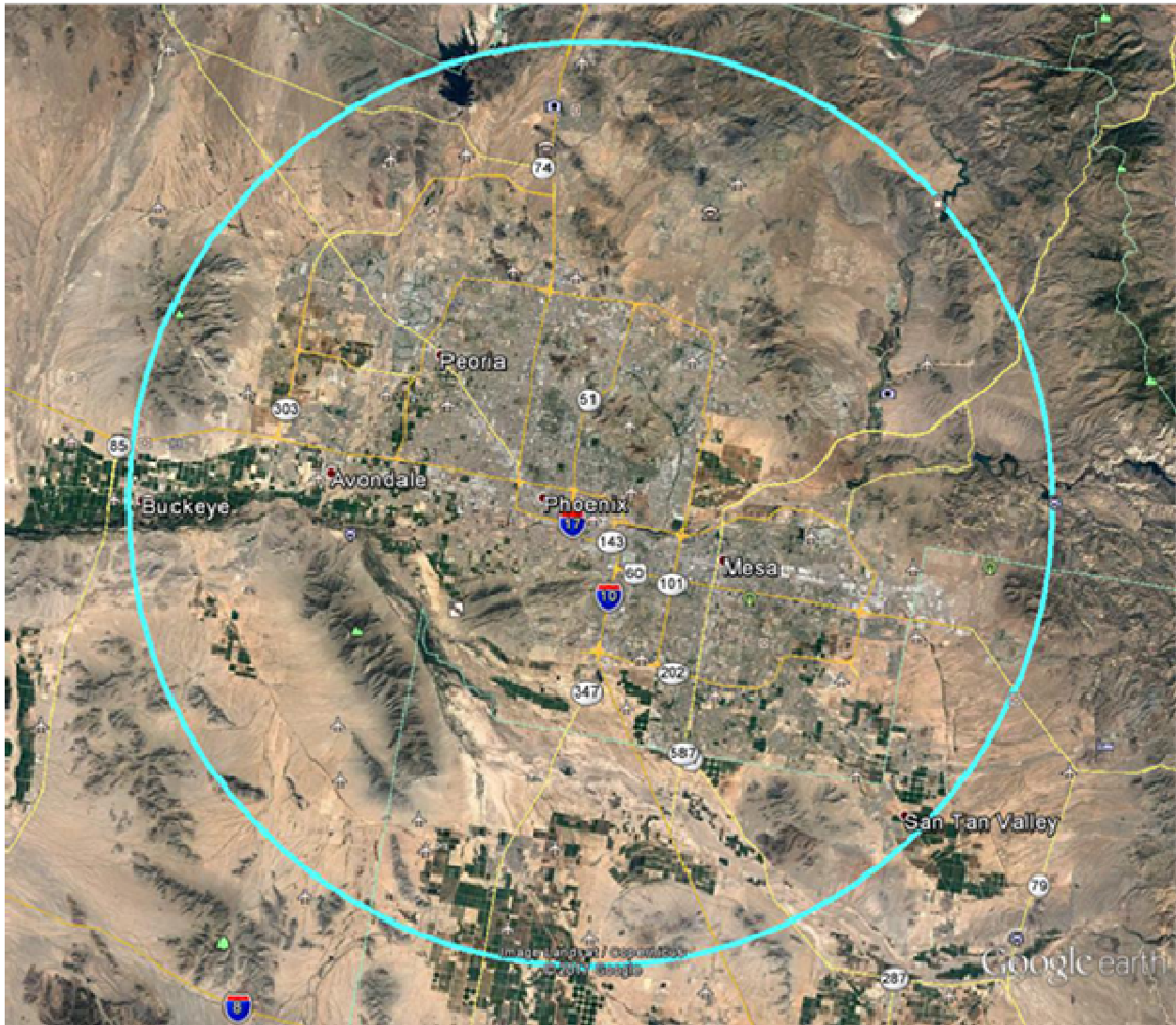
There are 14 environmental impact categories identified by FAA Order 1050.1F. Only those areas where there may be significant environmental impacts caused by the Proposed Action, or where there are uncertainties which require evaluation are discussed in this document.

The Proposed Action does not involve land acquisition, physical disturbance, or construction activities. Furthermore, there is no anticipated increase in the number of aircraft operations at Phoenix Sky Harbor associated with the Proposed Action. Given the limited scope of the Proposed Action, the following environmental impact categories were assessed and were considered to have negligible or non-existent effects from the Proposed Action, and in accordance with CEQ regulations, did not warrant further analysis:

- Biological resources (including fish, wildlife, and plants)
- Climate
- Coastal Resources
- Farmlands
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Land Use
- Natural Resources and Energy Supply
- Socioeconomic Impacts and Children's Environmental Health and Safety Risks.
- Water Resources (Including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

The preliminary analysis considered potential impacts within the Proposed Action General Study Area (GSA), which encompasses roughly a 30 nautical mile radius around Phoenix Sky Harbor, where departing aircraft cross the GSA boundary at 10,000 feet AGL. The GSA, approximately 3,750 square miles in area, is shown in Figure 5-1 below.

Figure 5-1: Illustration of the General Study Area



The following environmental impact categories have the most potential to be affected by the Proposed Action.

5.1 Noise and Noise-Compatible Land Use

FAA Order 1050.1F provides specific guidance and requirements for assessing potential aircraft noise impacts. This section presents a brief introduction to information regarding noise and land use compatibility criteria applicable to the evaluation of noise impacts.

Methodology for Assessing Noise Impacts

The compatibility of existing and planned land uses with aviation actions is usually determined in relation to the level of aircraft noise by comparing the Day-Night Average Sound Level (DNL)¹⁵ values to the land use compatibility guidelines in FAA's regulations at 14 CFR Part 150. Part 150 identifies a DNL level of 65 decibels (dB) and below as compatible with residential and most other uses (See Exhibit 11-3 of the FAA Order 1050.1F, Desk Reference).

To determine whether aircraft noise impacts are significant under NEPA, the FAA considers whether predicted increase in noise associated with the proposed action exceed defined thresholds of significance. For aircraft noise, that threshold is an increase of DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe. For example, an increase from DNL 65.5 dB to 67 dB is considered a significant impact, as is an increase from DNL 63.5 dB to 65 dB.

Order 1050.1F notes that special consideration needs to be given to the evaluation of the significance of noise impacts on certain noise sensitive areas (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR Part 150 are not relevant to the value, significance, and enjoyment of the area in question.

Ordinarily, actions that are categorically excluded from NEPA do not require detailed environmental analysis. To identify the potential for extraordinary circumstances involving impacts on noise levels of noise sensitive areas, the FAA conducts an initial noise analysis using a "screening tool." Screening tools use simplified but conservative modeling assumptions to quickly provide estimates of where noise increases may occur.¹⁶ While a comprehensive modeling tool also needs detailed inputs, a noise screening tool is optimized to take advantage of simplified inputs to produce results for a more narrowly defined purpose, such as a preliminary assessment of potential noise impacts. This analysis enables the FAA to identify areas that may require additional consideration prior to determining that use of a CATEX is appropriate.

¹⁵DNL takes into account the noise level of each individual aircraft event, the number of times those events occur, and the time of day in which they occur. DNL includes a 10 dB noise penalty added to noise events occurring from 10:00 p.m. to 7:00 a.m., to reflect the increased sensitivity to noise and lower ambient sound levels at night. FAA Order 1050.1F requires use of the DNL metric in NEPA analyses, although DNL analysis may optionally be supplemented on a case-by-case basis to characterize specific noise impacts.

¹⁶ In general modeling accuracy is dependent on a range of factors, including 1) how well the fundamental quantity to be modeled is understood and calculated, and 2) how accurately the inputs needed by the model are provided. All aircraft noise modeling tools must accurately account for the fundamentals of noise. However, while a comprehensive modeling tool also needs detailed inputs, a noise screening tool is optimized to take advantage of simplified inputs to produce results for a more narrowly defined purpose, such as a preliminary assessment of potential noise impacts. As a result, noise screening outputs are not suitable for reporting more detailed or precise noise results at specific locations.

FAA's noise screening tool for projects involving air traffic changes over large areas and altitudes over 3,000 feet AGL uses features available within the Terminal Area Route Generation Evaluation and Traffic Simulation (TARGETS), a flight procedure design tool, combined with the Aviation Environmental Design Tool (AEDT) Environmental Plug-In. This noise screening tool identifies areas that may be exposed to significant noise impacts (i.e., an increase of DNL 1.5 dB or more in an area that is exposed to noise at or above the DNL 65 dB noise exposure level.) The noise screening tool also identifies certain areas with potential increases in areas exposed to lower levels of noise, specifically:

1. For DNL 60 dB to less than 65 dB: ± 3 dB
2. For DNL 45 dB to less than 60 dB: ± 5 dB

The FAA refers to changes in noise exposure levels meeting these criteria as "reportable." Although they do not exceed the threshold of significance for most land uses, for certain land uses where the Part 150 land use guidelines are not relevant to the value, significance, and enjoyment of the area in question, they are factors to consider in whether there are extraordinary circumstances rendering a CATEX inapplicable.

To determine the potential impact(s) from noise, the screening analysis compares the baseline scenario to an alternative scenario or scenarios. The baseline scenario typically represents the existing procedures as they are flown at the time of the modelling, or the No Action Scenario. The alternative scenario(s) represents the radar tracks assigned to the Proposed Action and any other alternatives being considered.

Noise Screening Analysis

Potential noise impacts were screened using the AEDT Environmental Plug-In for TARGETS. Two scenarios were evaluated for this noise screen. Refer to the Noise Screening Analysis Report found in Appendix B.

1. No Action Scenario: The scenario represents radar tracks as they are currently flown and is considered the baseline. Noise screening of the No Action Scenario modeled the noise impact(s) of Phoenix Sky Harbor arrivals and departures as they are currently flown. Assigned aircraft routes were unchanged.
2. Proposed Action Scenario: The scenario screened using the simplifying assumption that Phoenix Sky Harbor departure aircraft would be assigned to the proposed RNAV SID that most closely matched their flight track regardless of aircraft equipment or type. This also incorporates the simplifying assumption that all aircraft are equipped and capable of flying RNAV procedures.

The Proposed Action was revised to reflect that the WETAL RNAV SID would not be used. Therefore, new noise screening was conducted for the revised Proposed Action Scenario, which

did not reassign air traffic currently flying the southwest route to the WETAL procedure. The Proposed Action Scenario screened the flight tracks on the southwest route as currently flown.

To determine projected noise levels on the ground, it is necessary to determine the frequency of aircraft operations and the position of the aircraft in space laterally (i.e., ground tracks), and vertically (i.e., altitude). Arrival and departure direction to and from an airport are generally a function of the geometry of the airport's runways; procedures used to manage air traffic, and are primarily dictated by wind and weather conditions. Much of this information is obtainable through historical radar track data. Track data provides information regarding lateral path definitions, aircraft types, time of day operations, runway usage percentages for departure/arrival streams and day/night traffic ratios.

Historical radar track data was obtained from the FAA's National Offload Program¹⁷. Track data was collected for 90 randomly selected days (using a random day generator) during calendar year 2017 ("2017 Track Data"). The selection of 90 random days is considered to best represent average traffic counts and traffic flows accounting for seasonal variations and peak travel times for Phoenix Sky Harbor. A separate noise screening analysis was first run for each scenario to establish the noise exposure levels for that scenario.

Once the two scenarios were screened individually, the TARGETS AEDT Environmental Plug-In Tool was used to compare the Proposed Action Scenario to the No Action Scenario to evaluate whether implementing the Proposed Action is expected to result in significant noise impacts when compared to the No Action Scenario.

Results of Noise Screening

The new noise screening indicates that the revised Proposed Action would not result in a significant noise impact on land uses covered by the Part 150 noise compatibility guidelines. Additionally, results of the new noise screening did not identify any areas with potential reportable changes in noise exposure levels as previously defined.

5.2 Air Quality

This section considers the potential for the Proposed Action to have impacts on air quality that could preclude use of a CATEX. Any air quality impacts would be the result of increased emissions from aircraft using the amended procedures as compared to the No Action alternative; there are no other emissions sources associated with the Proposed Action. Under the Proposed Action, departing aircraft would reach the RNAV "engagement point" at the same distance and altitude as aircraft flying today. No additional operations would result from the Proposed Action.

In the United States (U.S.), air quality is generally monitored and managed at the county or regional level. The U.S. Environmental Protection Agency (EPA), pursuant to mandates of the

¹⁷ All traffic data was obtained using the Phoenix Terminal Radar Approach Control as the radar source facility.

federal Clean Air Act, (42 U.S.C. § 7401 et seq. (1970)), has established the National Ambient Air Quality Standards (NAAQS) to protect public health, the environment, and quality of life from the detrimental effects of air pollution. Standards have been established for the following criteria air pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), and sulfur dioxide (SO₂). Particulate Matter standards have been established for inhalable coarse particles ranging in diameter from 2.5 to 10 micrometers (µm) (PM₁₀) and fine particles less than 2.5 µm (PM_{2.5}) in diameter.

According to FAA Order 10501F, Exhibit 4-1, an emissions impact is significant if “[t]he action would cause pollutant concentrations to exceed one or more of the NAAQS, as established by the EPA under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.”

EPA must designate areas as meeting (attainment) or not meeting (nonattainment) the NAAQS standards. The Clean Air Act requires states to develop a general plan to attain and maintain the standards in all areas of the country and a specific plan to attain the standards for each area designated nonattainment. These plans are known as State Implementation Plans (SIPs). A SIP is a collection of regulations and documents used by a state, territory, or local air district to reduce air pollution in areas that do not meet NAAQS.

According to the EPA’s website,¹⁸ the SIP status report for the greater Phoenix area includes part of Maricopa, Pima and Pinal counties designated as nonattainment areas. Table 5-1 lists the counties in nonattainment for specific criteria air pollutants.

Table 5-1. Current Nonattainment Counties That Contain the Greater Phoenix Area

County Name	NAAQS	Part County NA ¹⁹	Nonattainment Area Name	Classification (if applicable)
Maricopa	PM ₁₀ (1987)	X	Phoenix	Serious
Maricopa	8-Hr Ozone (2008)	X	Phoenix-Mesa	Moderate
Pima	PM ₁₀ (1987)	X	Ajo (Pima County)	Moderate
Pima	PM ₁₀ (1987)	X	Rillito	Moderate
Pinal	Lead (2008)	X	Hayden	
Pinal	PM ₁₀ (1987)	X	Hayden	Moderate
Pinal	PM ₁₀ (1987)	X	Phoenix	Serious
Pinal	PM ₁₀ (1987)	X	West Pinal	Moderate
Pinal	PM _{2.5} (2006)	X	West Central Pinal	Moderate
Pinal	Sulfur Dioxide (1971)	X	Hayden (Pinal County)	

¹⁸ https://www3.epa.gov/airquality/urbanair/sipstatus/reports/az_areabypoll.html. Accessed on December 29, 2017.

¹⁹ “Part County NA” means only a portion of the county is designated nonattainment.

Pinal	<i>Sulfur Dioxide (2010)</i>	X	Hayden	
Pinal	<i>8-Hr Ozone (2008)</i>	X	Phoenix-Mesa	Moderate

Under section 176(c)(4)) of the Clean Air Act (42 U.S.C. 7506(c)) and EPA regulations at 40 CFR Parts 51 and 93 (commonly referred to as the General Conformity Rule), the FAA must ensure that its activities do not cause or contribute to new violations of the NAAQS; worsen existing violations of the NAAQS or delay attainment of the NAAQS. When developing the General Conformity Rule, the EPA recognized that many actions conducted by Federal agencies do not result in substantial increases in air pollutant emissions in nonattainment and maintenance areas. Therefore, the EPA established threshold levels (also referred to as *de minimis* levels) for emissions of each of the criteria pollutants. When the sum of the increases in direct and indirect emissions from a project would be less than the *de minimis* levels, a project would not require a general conformity determination. For nonattainment and maintenance areas, applicable *de minimis* thresholds for compliance are provided in CFR 40 part 93.153. Table 5-2 details the *de minimis* rates that apply to nonattainment areas (NAAs).²⁰

Table 5-2. 40 CFR 93.153(b)(1)-*De minimis* Thresholds for Nonattainment Areas

NAAQS Criteria Pollutant	Tons per Year
Ozone (VOC or NOx):	
• Serious Nonattainment Areas	50
• Severe Nonattainment Areas	25
• Extreme Nonattainment Areas	10
• Other ozone NNAs outside an ozone transport region	100
Other Ozone NNAs inside an ozone transport region:	
• VOC	50
• NOx	100
Carbon Monoxide: All Maintenance Areas	100
SO₂ or NO₂: All NAAs	100
PM₁₀:	
• Moderate NAAs	100
• Serious NAAs	70
PM_{2.5}: (Direct emissions, SO₂, NOx, VOC, and Ammonia):	
• Moderate NAAs	100
• Serious NAAs	70
Pb: All NAAs	25

The General Conformity Rule also allows Federal agencies to develop a list of actions that are presumed to conform to a SIP.²¹ This can be done by clearly demonstrating that the total of

²¹ 40 CFR 93.153(g)(h))

direct and indirect emissions from these types of activities would not cause or contribute to any new violation of any standard in any area; interfere with provisions in the applicable SIP for maintenance of any standard; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area including emission levels specified in the applicable SIP. Alternatively, Federal agencies can establish actions that are presumed to conform by providing documentation that emissions from these types of actions are below the applicable de minimis levels. The FAA published a list of Presumed to Conform activities in the Federal Register on July 30, 2007.²²

Air Quality Analysis

The FAA's Presumed to Conform list includes "Air Traffic Control Activities and Adopting Approach, Departure and Enroute Procedures for Air Operations." Air traffic control activities are defined for this purpose as "actions that promote the safe, orderly, and expeditious flow of aircraft traffic, including airport, approach, departure, and en route air traffic control. Airspace and air traffic actions (e.g., changes in routes, flight patterns, and arrival and departure procedures) are implemented to enhance safety and increase the efficient use of airspace by reducing congestion, balancing controller workload, and improving coordination between controllers handling existing air traffic, among other things." FAA determined that project-related aircraft emissions released into the atmosphere below the inversion base for pollutant containment, commonly referred to as the "mixing height," (generally 3,000 feet above ground level) can be presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions.²³ This Presumed to Conform covers the Proposed Action.

5.3 Department of Transportation Act, Section 4(f)

An impact on properties protected under Section 4(f) of the Department of Transportation Act is one of the factors FAA considers in determining whether there are extraordinary circumstances that would preclude use of a CATEX to satisfy NEPA requirements for a proposed action. Section 4(f), as amended and re-codified at 49 U.S.C. § 303(c), states that, subject to exceptions for *de minimis* impacts²⁴:

... the Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or

²² 72 Fed. Reg. 41565.

²³ 72 Fed. Reg. 41578.

²⁴ The term "highly controversial on environmental grounds" means there is a substantial dispute involving reasonable disagreement over the degree, extent, or nature of a proposed action's environmental impacts or over the action's risks of causing environmental harm. FAA Order 1050.1F, Section 5-2.b.(10).

land of an historic site of national, State, or local significance,²⁵ (as determined by the officials having jurisdiction over the park, area, refuge, or site) only if . . . there is no feasible and prudent alternative to the use of such land...and the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

As noted above, the Proposed Action does not involve land acquisition, physical disturbance, or construction activities. However, the term “use” within the meaning of Section 4(f), includes not only direct physical impacts or occupation of a Section 4(f) resource, but also “constructive” use resulting from impacts to Section 4(f) properties. A constructive use can occur when an action’s noise, air pollution, water pollution, or other impacts are so severe that the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished. In determining whether an FAA action would result in the constructive use of a Section 4(f) property, the FAA must consult the appropriate official(s) having jurisdiction over the property to identify the activities, features, or attributes that qualify the property for protection under Section 4(f) and assess whether project-related impacts would substantially impair them. In the case of public parks, recreation areas, and wildlife and waterfowl refuges, the official with jurisdiction is the official of the agency or agencies that own or administer the property in question, who has authority to represent the agency on matters related to the property. In the case of historic sites, the official with jurisdiction is the State Historic Preservation Officer (SHPO) or the Tribal Historic Preservation Officer (THPO)²⁶ if the property is located on tribal land.

The FAA may rely on the land use compatibility guidelines in 14 CFR Part 150 to determine whether there is a constructive use by noise where the land uses specified in the Part 150 guidelines are relevant to the value, significance, and enjoyment of the Section 4(f) lands in question. For example, the FAA may rely on the Part 150 guidelines for outdoor sports arenas and spectator sports, golf courses and water recreation in evaluating constructive use of lands devoted to those recreational activities. The FAA may also rely upon the Part 150 guidelines for residential use to evaluate noise impacts on historic properties that are in use as residences. If a historic house or neighborhood is significant only for its architecture, then project-related noise would not substantially impair the characteristics that make it eligible for protection under

²⁵ There is no prescribed format; however, the documentation should cite the CATEX(s) used, describe how the proposed action fits within the category of actions described in the CATEX, and explain that there are no extraordinary circumstances that would preclude the proposed action from being categorically excluded.” FAA Order 1050.1F, Section 5-3.d.

²⁶ If the property is on tribal lands, but the tribe has not assumed the responsibilities of the SHPO, a representative designated by the tribe.

Section 4(f) and would not constitute a constructive use. However, the Part 150 guidelines may be insufficient to determine the noise impact on certain types of Section 4(f) properties where a quiet setting is a generally recognized purpose and attribute (e.g., where it has been identified as a contributing factor to a historic site's significance, such as a historic village preserved specifically to convey the atmosphere of rural life in an earlier era or a traditional cultural property). In determining whether to apply the Part 150 guidelines to Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks, national wildlife and waterfowl refuges, and historic sites), the FAA must weigh additional factors such as the impacts of noise on the expectations and purposes of people visiting areas where other noise is very low and a quiet setting is a generally recognized purpose and attribute.

The Proposed Action would not result in noise levels at properties protected by Section 4(f) that would be incompatible with the land uses specified in the Part 150 guidelines. In addition, the results of the noise screening analysis indicated no significant or reportable changes in noise exposure levels as a result of the Proposed Action. The FAA consulted with officials with jurisdiction over Section 4(f) properties in the study area and did not identify any resources for which different standards would be necessary to assess whether project-related impacts would substantially impair the activities, features, or attributes that qualify the property for protection under Section 4(f). Therefore, the FAA has concluded that the Proposed Action would not result in a constructive use of properties protected by Section 4(f).

5.4 Historical, Architectural, Archaeological and Cultural Resources

An adverse effect on cultural resources protected under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (54 U.S.C. § 300101 et seq., as amended) that results in a significant impact is another extraordinary circumstance that would preclude use of a CATEX. Section 106 requires federal agencies to consider the effects of their undertakings on properties listed or eligible for listing in the National Register of Historic Places ("National Register"). For the purposes of Section 106 of the NHPA, the undertaking is the Proposed Action described above. Compliance with Section 106 requires consultation to identify historic properties that might be affected by the undertaking and develop approaches to avoid, minimize or mitigate any adverse effects on those properties. The specific requirements for consultation are set forth in regulations of the Advisory Council on Historic Preservation at 36 CFR part 800.

The FAA initiated consultation in December 2017 with the Arizona SHPO, the Gila River Indian Community THPO and the City of Phoenix Historic Preservation Officer (CHPO). In February 2018, the FAA initiated consultation with the historic neighborhood Petitioners ("Historic Neighborhood Associations").²⁷ The FAA also contacted other Federally-recognized Tribes that

²⁷ The Historic Neighborhood Petitioners are the Encanto-Palmcroft Historic Preservation Association; Roosevelt Action Association; Willo Neighborhood Association; Story Preservation Association

might attach religious or cultural significance to historic properties in the area, including the Salt River Pima-Maricopa Indian Community, the Ak-Chin Indian Community of the Maricopa, the Fort McDowell Yavapai Nation, and the Tohono O’odham Nation. Appendix C, *Consultation Correspondence*, summarizes and includes copies of correspondence with potential consulting parties to date. The consultation process is ongoing to address potential effects associated with Step 1B.

Area of Potential Effects

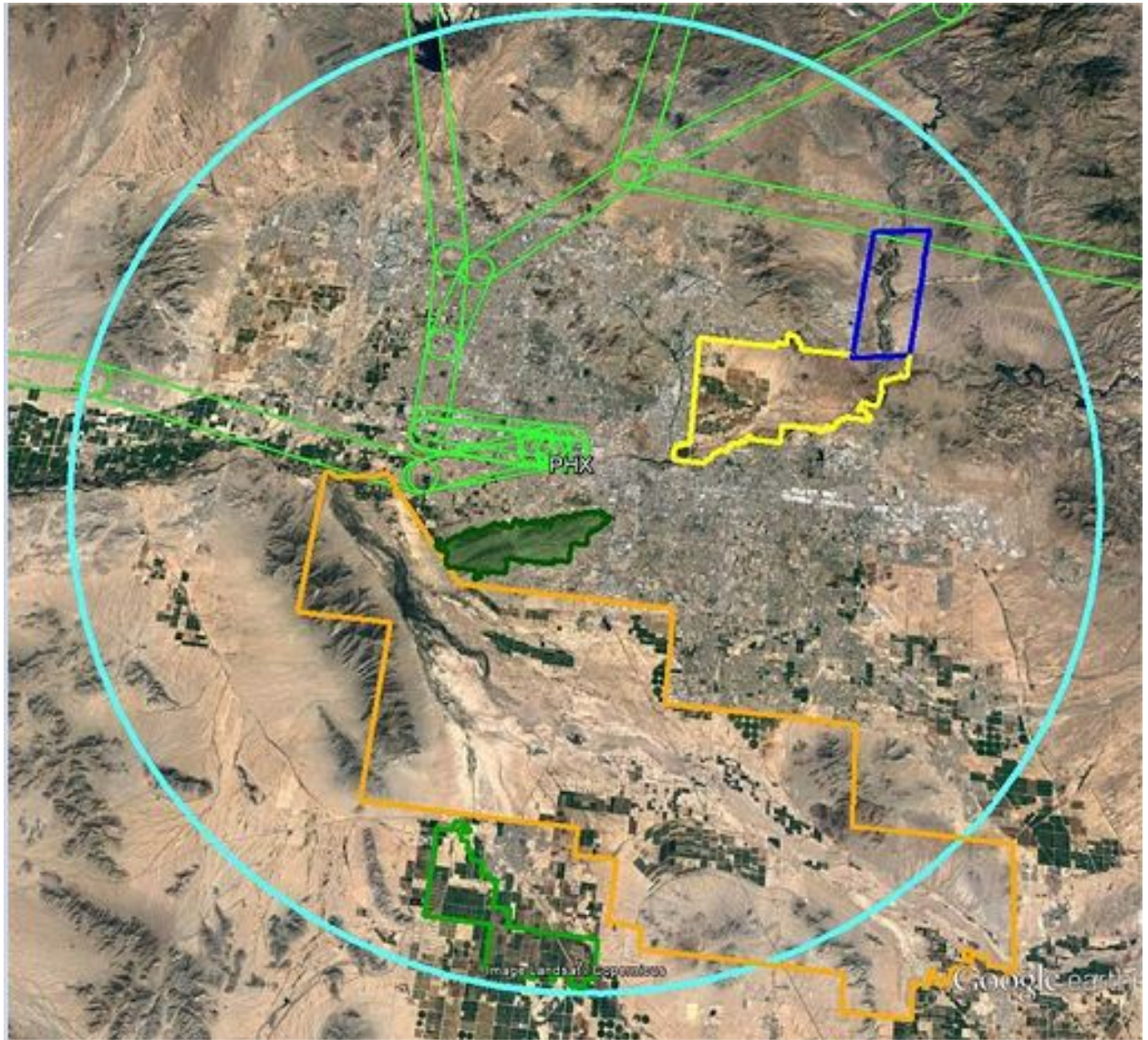
The Area of Potential Effects (APE) under Section 106 is defined as the geographic area or areas within which an undertaking may directly or indirectly cause alternation in the character or use of historic properties, if any such properties are present (36 CFR § 800.16(d)). The APE is influenced by the scale and nature of the undertaking and may vary for different kinds of effects caused by the undertaking. “Effects” are further defined by the regulations as alterations to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register.

Because this undertaking does not require land acquisition, construction, or other ground disturbance, there would be no direct physical effects to historic resources. Therefore, potential effects are limited to effects from aircraft overflights, primarily noise. The FAA originally proposed an Area of Effect encompassing areas that could receive reportable noise increases.²⁸ Through initial consultation conducted with the Arizona State Historic Preservation Office the City of Phoenix Historic Preservation Office, the Gila River Indian Community, the Salt River Pima-Maricopa Indian Community, the Ak-Chin Indian Community of the Maricopa, Fort McDowell Yavapai Nation, and the Tohono O’odham Nation, the FAA has been made aware of the presence of traditional cultural properties in the area overflowed by aircraft departing west and turning south. As part of the consultation process for Step 1B, these traditional cultural properties are being assessed to consider their sensitivity to effects of overflights that introduce a visual, atmospheric, or auditory element.

The SHPO and CHPO proposed an alternate APE consisting of a two-mile buffer zone around each proposed departure route in order to assess the indirect effects (i.e., auditory and atmospheric) to historic properties. In light of the revised undertaking under which make the WETAL procedure will not be flown by aircraft, the FAA proposed a new APE as shown in Figure 5-2, consisting of a two-mile buffer zone around the ZIDOG and KEENS west flow departure routes.

²⁸ Reference uploaded Draft Environmental Review and Draft Noise Screening Report (January 2018).

**Figure 5-2: Proposed Area of Potential Effect Consisting of a Two-Mile Buffer Zone
On the ZIDOG and KEENS Proposed RNAV SID procedures.**



	Project General Study Area
	Two Mile APE on ZIDOG Route and KEENS Route
	Ak Chin Indian Community of the Maricopa
	Gila River Indian Community
	Fort McDowell Yavapai Nation
	Salt River Pima-Maricopa Indian Community
	South Mountain Park/Preserve

Identification of Historical, Architectural, Archeological, and Cultural Resources

Section 106 regulations direct federal agencies to make reasonable and good faith efforts to identify historic properties with the APE (36 CFR § 800.4(b)(1)).

To identify historic properties in the APE, the FAA reviewed available databases of listed and eligible properties and conducted remote “windshield surveys” of the APE using Google Earth Street View™. The FAA also requested assistance from the consulting parties in identifying historic properties where a quiet setting is a contributing factor to the property’s historic significance. With the exception of traditional cultural properties in the area of South Mountain, none were identified. Based on the following analysis of potential effects, the FAA finds it unnecessary to conduct further identification efforts.

Assessment of Effects

Because this undertaking does not require land acquisition, construction, or other ground disturbance, there would be no direct physical effects to historic resources. Therefore, potential effects are limited to indirect effects from aircraft overflights, primarily noise. To identify the potential for a noise effect on historic properties, the FAA conducted an initial noise “screening” analysis to provide estimates of where noise increases may occur. The noise screening analysis indicated that the undertaking would not result in changes to noise exposure that exceed the significant noise threshold.²⁹

In response to the SHPO’s and CHPO’s recommendation,³⁰ and recognizing that some types of historic properties may be affected by overflights even at a noise level below these thresholds, the FAA also considered the potential for the introduction of visual, atmospheric, or auditory elements that could diminish the integrity of the property’s historic features. The FAA compared the proposed procedures with current flight tracks, as shown in Figure 5-3 and determined that there would be no new areas overflowed, and therefore no potential to introduce new visual, atmospheric, or auditory elements.

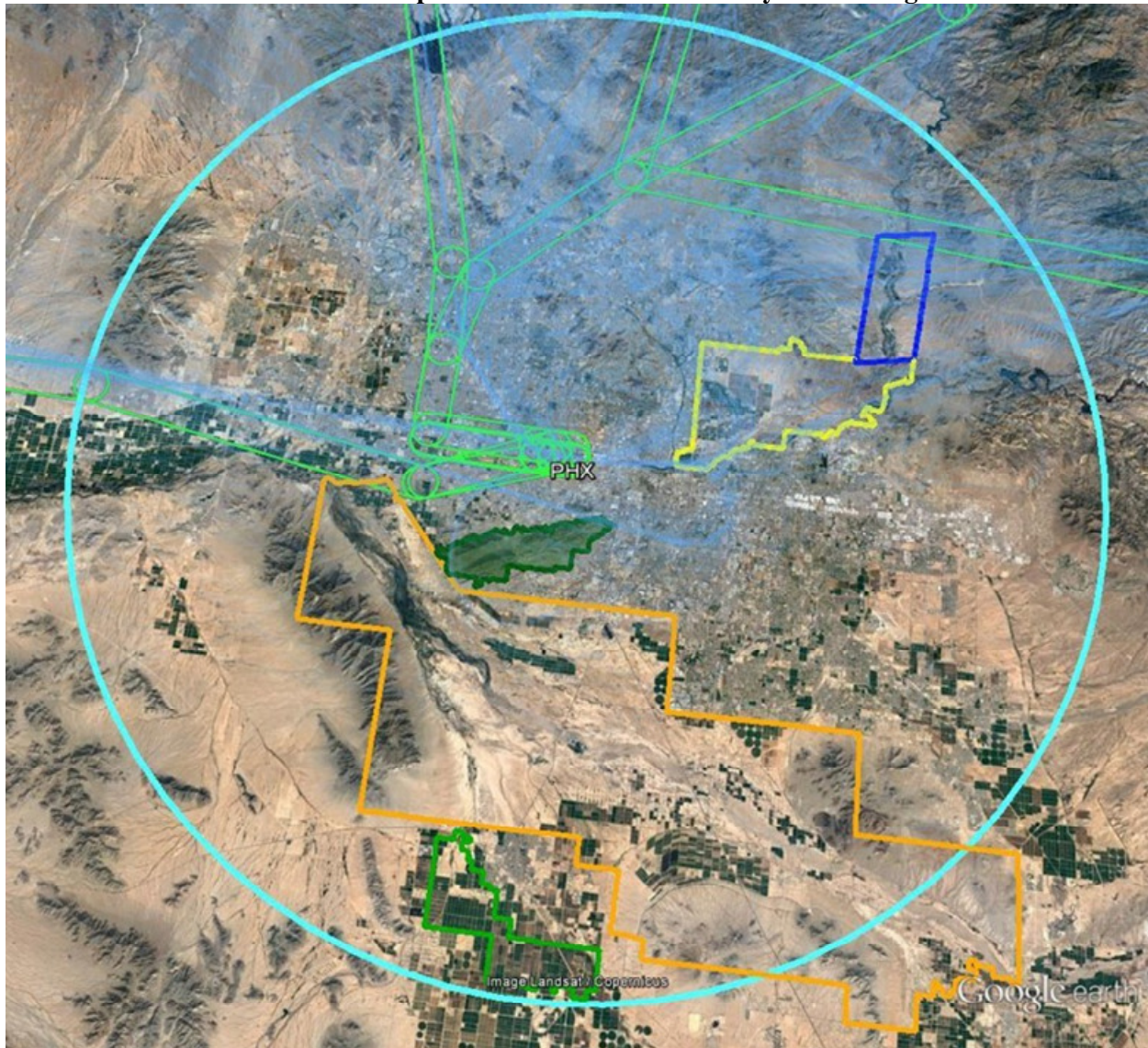
The FAA proposed a finding of “no historic properties affected” for the ZIDOG and KEENS RNAV SIDs because the procedure would have no effect on historic properties that may be present in the APE.³¹ The FAA has received concurrence on its proposed finding from the SHPO and the CHPO.

²⁹ The FAA considers an increase of DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase to be significant.

³⁰ Refer to Appendix C for the Step 1A final Environmental Review under Supplemental Materials at https://www.faa.gov/nextgen/nextgen_near_you/community_involvement/phx/

³¹ Refer to Appendix C for the Step 1A final Environmental Review under Supplemental Materials at https://www.faa.gov/nextgen/nextgen_near_you/community_involvement/phx/

Figure 5-3. Proposed Area of Potential Effect Consisting of a two-mile buffer zone around the ZIDOG and KEENS Proposed Procedures with Overlay of 2017 Flight Tracks



	Project General Study Area
	Two Mile APE on ZIDOG Route and KEENS Route
	2017 Flight Tracks for West Flow Departures
	Ak Chin Indian Community of the Maricopa
	Gila River Indian Community
	Fort McDowell Yavapai Nation
	Salt River Pima-Maricopa Indian Community
	South Mountain Park/Preserve

5.5 *Environmental Justice*

This section addresses the potential for impacts on minority and low-income populations of the Proposed Action as compared with No Action. This analysis draws on the findings of the noise screening analysis.

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. *Fair treatment* means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies. *Meaningful Involvement* means that:

- people have an opportunity to participate in decisions about activities that may affect their environment and/or health;
- the public's contribution can influence the regulatory agency's decision;
- their concerns will be considered in the decision making process; and
- the decision makers seek out and facilitate the involvement of those potentially affected.

The following executive orders and guidelines require federal agencies to consider the effects of their actions on minority and low income populations (Environmental Justice):

- Executive Order 12989, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 FR 7629)
- U.S. Department of Transportation (U.S.DOT) Order 5610.2, *Environmental Justice in Minority and Low Income Populations*
- *Environmental Justice: Guidance Under the National Environmental Policy Act* (CEQ, 1997)
- *Final Guidance for Consideration of Environmental Justice in Clean Air Act 309 Reviews*, (EPA, 1999)

Requirements for meaningful public involvement by minority and low-income populations are addressed in Paragraph 2-5.2.b of FAA Order 1050.1F. As stated in the Order, the FAA must provide for meaningful public involvement by minority and low-income populations. In accordance with DOT Order 5610.2(a), this public involvement must provide an opportunity for minority and low income populations to provide input on the analysis, including demographic analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse. The public involvement process can also provide information on subsistence patterns of consumption of fish, vegetation, or wildlife. This information should be disclosed to potentially affected populations for proposed actions and

alternative(s) that are likely to have a substantial effect and for Comprehensive Environmental Response, Compensation, and Liability Act sites.

An environmental justice analysis considers the potential of the Proposed Action to cause disproportionately high and adverse effects³² on low-income or minority populations due to significant impacts in other environmental impact categories; or impacts on the physical environment that affect an environmental justice population in a way that FAA determines are unique to the environmental justice population and significant to that population. If these factors exist, there is not necessarily a significant impact; rather, the FAA must evaluate these factors in light of context and intensity to determine if there are significant impacts.

The Proposed Action study area was determined by evaluating the potential noise changes on the west side of the airport for Phoenix Sky Harbor. The study area encompasses areas of Maricopa County, Arizona. The AEDT Environmental Justice module was used to identify these populations in the vicinity of Phoenix Sky Harbor. The AEDT Environmental Justice module relies on U.S. Census demographic data to identify communities that may be candidates for meaningful involvement in project communication and/or outreach activities. AEDT incorporates Census 5-year American Community Survey data that includes low-income and minority information to the Block Group level. The intent of this analysis is to quantitatively identify potential populations based on readily available Census data using standard techniques.

Within this study area, minority and low-income populations were identified. In order to identify minority and low-income populations, the average minority and low-income populations within the study area were determined, and any census block group within the study area that has a minority or low-income percentage that is higher than the average of the study area were identified. Note that the data is presented at the Census Block Group level, and actual concentrations of poverty and minority populations may not be uniformly distributed within the block group.

Low-Income

Within the study area, the average low-income population is 30.9%. By comparison, using the same methodology, the average county level low-income population is 17.1% for Maricopa County. The average state level low-income population is 18.2% for Arizona. The average national level low-income population is 15.6%. Table 5-3 presents a summary of the county, state, and national level low-income percentages.

³² “Adverse effects” means the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects. DOT Order 5610.2(a) provides the definition for the types of adverse impacts that should be considered when assessing impacts to environmental justice populations.

Table 5-3. Low-income data for the counties included in the Phoenix study area

State	County	County % Low- Income	State % Low- Income	National % Low Income	Study Area % Low Income
Arizona	Maricopa	17.1	18.2	15.6	30.9

Minority

Within the study area, the average minority population is 68.1%. For comparison, using the same methodology, the average county level minority population is 17.1%. The average state level minority population is 43.1% for Arizona. The average national level low-income population is 37.2% Table 5-4. presents a summary of the county, state, and national level minority percentages.

Table 5-4. Minority population data for the counties included in the Phoenix study area

State	County	County % Minority	State % Minority	National % Minority	Study Area % Minority
Arizona	Maricopa	42.2	43.1	37.2	68.1

Results

The following figures display the results of the analysis. Figure 5-4 presents the boundary and demographics for the entire study area. Figure 5-5 presents the demographic information at a higher zoom level to the west of the airport. Figure 5-6 through Figure 5-7 displays the individual procedures under consideration along with the historic tracks associated with the procedure being replaced by the proposed procedure.

Peoria

Glendale

Phoenix

Tempe

Mesa

Chandler

Avondale

Phoenix Sky Harbor International Airport

PHX Study Area

Demographics

- No Threshold Exceeded
- Average Poverty Threshold Exceeded
- Average Minority Threshold Exceeded
- Average Minority and Poverty Thresholds Exceeded

Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

W Northern Ave
Glendale
W Glendale Ave
N 7th Ave
N Central Ave
N 16th St
N 24th St
S 67th Ave
S 59th Ave
S 35th Ave
S 19th Ave
S 7th Ave
E Broadway Rd
AZ-202-LOOPE
Phoenix
Tempe

Phoenix Sky Harbor International Airport
PHX Study Area
Demographics
No Threshold Exceeded
Average Poverty Threshold Exceeded
Average Minority Threshold Exceeded
Average Minority and Poverty Thresholds Exceeded

0 1.25 2.5 5 Miles

Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NCCO, © OpenStreetMap contributors, and the GIS User Community

Figure 5-6. Proposed Departure Paths for ZIDOG Procedure and Associated Historic Flight Tracks.

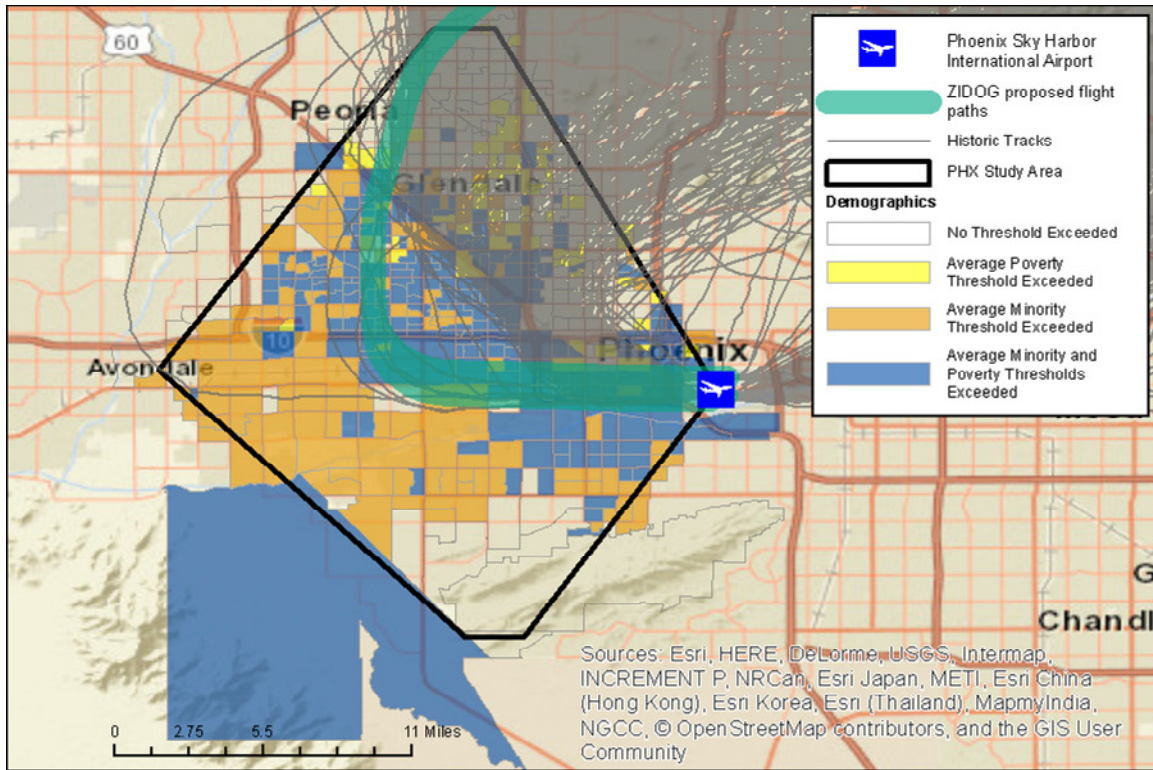
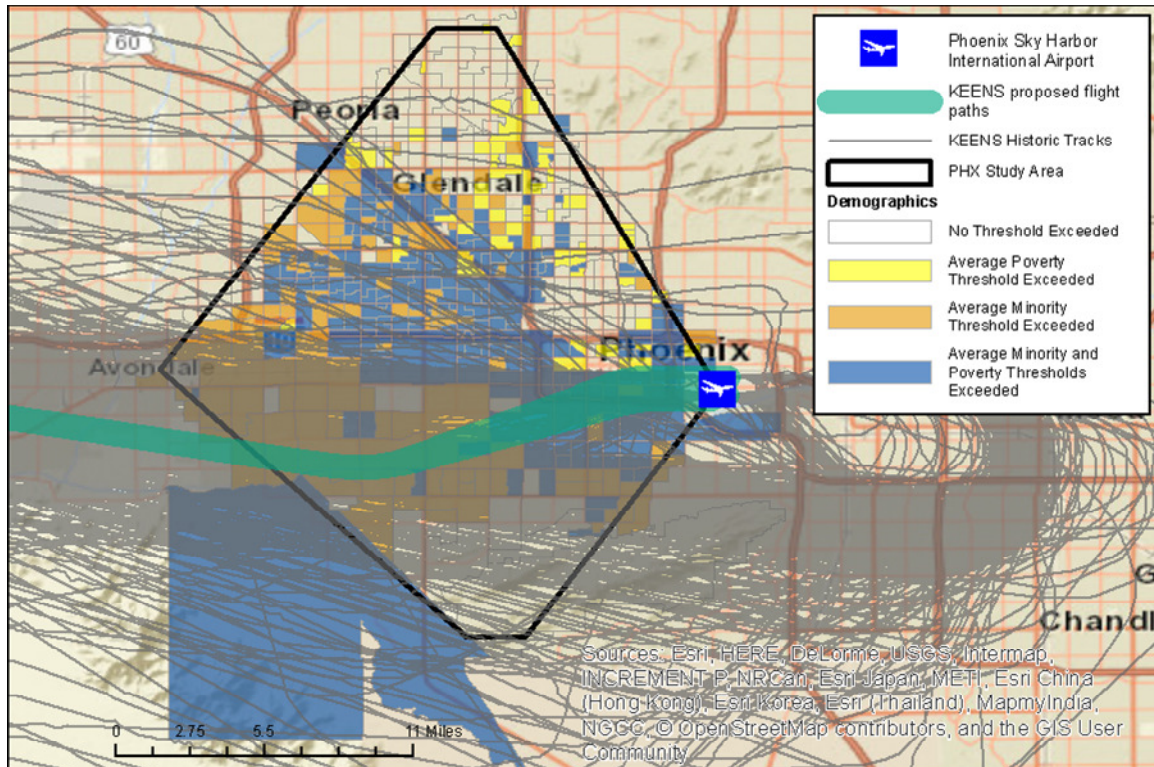


Figure 5-7. Proposed Departure Paths for KEENS Procedure and Associated Historic Flight Tracks.



Based on the FAA's noise screening analysis, no significant noise impacts associated with the Proposed Action would occur as a result of its implementation; and no populations would be disproportionately adversely impacted.

5.6 Visual Effects

The FAA considered the potential for visual impacts related to the shift in west flow departure flight paths on scenic resources of Federal, state, tribal, or local significance, which if significant could constitute an extraordinary circumstance precluding the use of a CATEX. Potential impacts resulting from the Proposed Action would be limited to short-term discrete effects resulting from aircraft overflights. Lands sensitive to visual impacts include National Parks, National Wilderness Areas, and Tribal lands. The aircraft overflights above scenic and otherwise sensitive land use settings may be perceived as annoying or intrusive.

The FAA has not established a significance threshold for visual effects in FAA Order 1050.1F; however, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for visual effects. Consultation pursuant to Section 106 and Section 4(f), described above, identified resources that could have been visually affected by the WETAL RNAV SID, which was part of the original Proposed Action. As noted above, the Proposed Action was modified to make the WETAL RNAV SID unavailable to aircraft. The FAA does not expect the Proposed Action will have a significant visual effect on parks, wilderness areas, tribal lands and historic properties.

5.7 Cumulative Impacts

The likelihood that an action would cumulatively create a significant impact on the human environment is another extraordinary circumstance that the FAA must consider before categorically excluding an action from further NEPA review. A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions".³³ Past, present, and reasonably foreseeable future action initiated by other Federal agencies, state, tribal, or local governments, or private entities must be considered in determining whether there are potential cumulative impacts.

The FAA has discretion to determine whether, and to what extent, information about past actions are useful for the analysis of the impacts of the proposed action and alternative(s). Present impacts of past actions that are relevant and useful are those that may have a significant cause-and-effect relationship with the direct and indirect impacts of the proposed action and alternative(s). Present actions occurring in the same general time frame as the proposal may have

³³ See 40 CFR § 1508.7 and CEQ's Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (June 2005) at: http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-PastActsCumulEffects.pdf.

noise or other environmental concerns that should be considered in conjunction with those that would be generated by the FAA proposed action and alternative(s) under consideration. Reasonably foreseeable future actions are actions that may affect projected impacts of a proposal and are not remote or speculative.

The cumulative impacts analysis focuses on those resource areas that may be impacted by the Proposed Action in conjunction with the past, present, and reasonable foreseeable future actions. Given the Proposed Action does not involve any of the circumstances described in Order 1050.1F, Paragraph 5-2(b) and will not exceed thresholds of significance, where applicable, the FAA has determined there would be no significant cumulative impacts as a result of the implementation of the Proposed Action.

6.0 PUBLIC/COMMUNITY INVOLVEMENT

NEPA requires federal agencies to disclose to decision makers and the interested public a description of the potential environmental impacts that could arise from certain proposed federal actions. The Federal Aviation Administration FAA implements NEPA through FAA Order 1050.1F.

The FAA recognizes the importance and value of public input in the environmental and historic review process. Therefore, the FAA used a variety of methods to conduct community outreach and solicit public comment. Notably, the FAA, with the assistance and cooperation of the City of Phoenix, held three public workshops in the greater Phoenix Metropolitan area between February 6 and February 8, 2018. The purpose of these workshops was to give the public a better understanding of the plan to address concerns about certain westerly routes that the FAA implemented in September 2014 at Phoenix Sky Harbor. In particular, the workshops informed the public about the proposed changes to western departure procedures at Phoenix Sky Harbor, consistent with the parties' Memorandum.

The workshop format consisted of multiple stations where representatives from the FAA and the City were available to answer questions. Each station provided information on a specific topic. These stations included an Air Traffic Control and Procedures station; an Environmental Computer station, which allowed the public to input an address to learn whether it was in an area of reportable noise change for the Proposed Action; an Environmental station; a Phoenix Airport station; a Legal station; a Feedback and Public Comment station; and an Interpreter/ADA³⁴ station. There was also a video presentation about the proposed departure procedures that

³⁴ The American Disabilities Act (ADA) requires that public meetings be accessible to members of the public who have a disability to ensure they have the opportunity to participate.

attendees were invited to view. All materials that were presented at the workshop were also available online on the FAA's Community Involvement website for Phoenix.³⁵

In addition to the public workshops, the FAA held a public comment period from February 1 to February 16, 2018. The FAA received approximately 1,100 comments from private citizens and groups, elected officials, municipalities, and local, state and federal agencies. The FAA accepted comments at the workshops, online using the FAA Phoenix Community Involvement Website, through e-mail, and through regular mail. Many of the same issues were raised by multiple commenters as discussed below. There were approximately 845 comments related to the proposed Step One. All comments have been considered. Although the FAA will not respond individually to each comment, the FAA has prepared responses for each comment category listed in Table 6.0 below. Further, the FAA has considered these comments in developing the final procedure designs and in making a final NEPA determination. The FAA will provide these responses to comments as part of the Step 1B environmental documentation.

The FAA grouped the Step One comments into seven categories. The assignment of a comment to a category occurred if there was a direct reference to that category or definition. A comment that contained a reference to more than one category was assigned to the additional categories as applicable.

Below is a list of the categories and the number of Step One comments that fell within each category:

Table 6.0. Comment Categories

Comment Category	Number of Comments
Air quality/Emissions	38
Biological	5
Environmental Justice	7
Noise	549
Section 106	2
Other*	656
Workshop Comments/Feedback	42

**Contains all comments for Step 1 that did not reference any of the other six categories.*

Below are the general definitions that the FAA used to categorize the Step One comments and a description of the nature of the comments received.

- **Air Quality/Emissions** – A reference to airborne pollutants and/or claims of breathing issues caused by the introduction or existence of aircraft, etc. Some commenters wanted to know whether the Proposed Action would result in the exceedance of one or more of

³⁵ See https://www.faa.gov/nextgen/nextgen_near_you/community_involvement/phx/.

the National Ambient Air Quality Standards (NAAQS), established by the Environmental Protection Agency (EPA), for any time period analyzed. Some comments included a reference or references to pollutants directly related to jet exhaust, including soot, fuel (either visible residue or vapor odor), etc. Other comments related to potential greenhouse gases (GHG) emissions or other pollutants resulting from the Proposed Project. Some commenters wanted more information on the level of GHG emissions and what potential harm could be caused by these impacts including impacts regarding global climate change.

- **Biological** – Referencing wildlife and/or habitats. FAA received five comments related to biological resources. Some of these comments related to the potential for bird or bat strikes by aircraft. Some commenters also asked whether endangered or threatened species could be impacted by the Proposed Action.
- **Environmental Justice** – References and/or claims to a decision to place flight paths or aircraft over low income or minority neighborhoods. FAA received seven comments on potential environmental justice impacts including more information on the location of environmental justice communities. The environmental justice analysis considered the potential of the Proposed Action to cause disproportionately high and adverse effects³⁶ on low-income or minority populations.
- **Noise** – A reference to noise directly related to aircraft that is either preexisting, or is expected to occur with the implementation of the proposed procedures. The majority of public comments on a specific environmental impact category related to noise impacts. This is normally the case for air traffic procedure changes or runway projects.
- **Section 106** – A reference to a specific resource or location that may require special consideration under Section 106 of the National Historic Preservation Act (i.e., historic or culturally significant properties). There were two comments related to the potential impacts of the proposal on historic properties. These issues included how potential noise impacts might affect historic properties.
- **Other** – A comment or portion of a comment that did not fall into any of the other categories. This also includes comments that solely described support or opposition to Step One. With respect to Step One, the FAA, City of Phoenix and historic property groups agreed that revising PHX western RNAV departure procedures to approximate the western departures that were in place before the September 2014 RNAV procedures was an acceptable approach for all parties. FAA received comments that were in favor of this approach. FAA also received many comments that did not agree with this approach, with

³⁶ “Adverse effects” means the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects. DOT Order 5610.2(a) provides the definition for the types of adverse impacts that should be considered when assessing impacts to environmental justice populations.

some indicating that the current routes should remain in place. Other commenters wanted new routes developed. Some commenters also wanted procedures changed in addition to the western departure procedures.

- **Workshop Feedback** – FAA received 42 comments directly pertaining to the workshops (i.e., not related to air traffic, the proposed procedures, or the project itself).

7.0 PREPARER(S)

The FAA Air Traffic Organization, Western Service Center, Operations Support Group is responsible for all or part of the information and representations contained herein.